DOCUMENT RESUME

ED 061 580 24 EA 004 088

AUTHOR Johnson, Sharon Counts
TITLE Flexible-Modular Scheduling. Educational Management Review Series Number 4.
INSTITUTION Oregon Univ., Eugene. ERIC Clearinghouse on Educational Management.
SPONS AGENCY National Center for Educational Research and Development (DHEW/OE), Washington, D.C.
BUREAU NO BR-8-0353
PUB DATE Mar 72
CONTRACT OEC-0-8-080353-3514
NOTE 10p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Administrator Role; Course Organization; Curriculum Planning; Educational Innovation; *Flexible Schedules; *Flexible Scheduling; Individualized Instruction; *Literature Reviews; *Schedule Modules; *School Schedules; Student Role; Teacher Role; Teaching Methods

ABSTRACT

This review surveys recent documents previously announced in RIE that are concerned with flexible-modular scheduling. Benefits derived from innovative scheduling techniques range across the entire spectrum of the educational experience, frequently providing for substantial change in the roles of students, teachers, and administrators. Under such a scheduling system, students can choose instruction individualized to meet their needs and teachers can assume greater participation in both curriculum planning and the development of new instructional methods. In addition, administrators can choose from multiple alternatives for organizing the school day and for managing time and space use in their schools. (Author/EA)

EDUCATIONAL RESOURCES INFORMATION CENTER • CLEARINGHOUSE ON EDUCATIONAL MANAGEMENT

EDUCATIONAL MANAGEMENT REVIEW SERIES

—an ongoing survey of topics in educational management designed to provide the practicing educator with reviews that are contemporary and sensitive to education's changing information requirements. Reports cited in the reviews have been processed by this and other clearinghouses in the ERIC system and announced in *Research in Education (RIE)*, ERIC's monthly index and abstract catalog.

ED 061580

EA 004 088

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

March 1972 Number 4

Flexible-Modular Scheduling

Sharon Counts Johnson

> Flexible scheduling is an operating framework characterized by classes of unequal length which meet at differing periods throughout the week and which are geared to the individual needs of students. Flexible scheduling may vary from merely rearranging time allotments and sequences of established courses to a complex modular approach in which schedules for each student are generated daily and picked up by the student each morning.
>
> *Heathman and Nafziger (1971)*

The key objective of flexible-modular scheduling—improvement in the quality of education—is attractive. Benefits derived from innovative scheduling techniques range across the entire spectrum of the educational experience, frequently providing for substantial change in the roles of students, teachers, and administrators.

Students can choose instruction that is individualized to meet their needs through variable schedules that allow for a range of course choices, optional programs, and independent study. Students are able to select their own goals and pursue areas of interest beyond the standard parameters of their curriculum.

Teachers are able to use their individual talents and training in the development of new instructional methods and are freed to design assignments more consistent with individual student abilities. In addition, they are assuming greater participation in curriculum planning and are exploring new relationships between class-size and subject matter requirements through experiments in large-group, small-group, and individual instruction.

Administrators are offered multiple alternatives for organizing the school day and for managing time and space use in their schools. Flexible-modular scheduling provides for a unique emphasis on individual initiative, which enhances interrelationships among students, teachers, staff, and administrators.

All but three of the documents reviewed are available from the ERIC Document Reproduction Service. Complete instructions for ordering these documents are given at the end of the review.

VIEWS ON FLEXIBLE SCHEDULING

Although the master schedule is the foundation of the secondary school, very few administrators, according to Wiley and Bishop (1968), have any background in its construction. Even for the traditional equal-time-for-each-subject program, scheduling is a complex task and should take into account the methodology and learning process of the school. The prime scheduling variables—time, teachers, students, facilities, and curriculum—each have peculiar sets of circumstances and limitations. For the development of a proper scheduling rationale, these variables must fit into a complex, but complete, picture.

The authors recommend that the allotment of instructional time vary according to the individual subject; that teachers have more preparation time during the school day; that students assume more responsibility for their own education, especially in the area of free time; and that facilities be diversified to accommodate all students rather than only college preparatory students. These possibilities are all present when a variable class schedule is employed. Wiley and Bishop believe it is the principal's role to see that changes are made.

In the opinion of Davis and Bechard (1968), a school schedule should enhance the attainment of sound educational objectives. A flexible schedule allows teachers to change group size, group composition, and class length according to the purpose of the lesson. Their pamphlet presents various "master" schedules for flexible scheduling: (1) simple block schedules, (2) back-to-back schedules, (3) interdisciplinary schedules, (4) schoolwide block schedules, (5) open-lab schedules, (6) rotating schedules, (7) block-modular schedules, and (8) flexible-modular schedules.

Valencia (1969) provides a simplified description of flexible-modular scheduling and of instructional strategies applicable to high school curricula. Group size, facilities, and teaching roles are considered in the overall picture of flexible-modular scheduling. The role of the teacher is directive in large-group instruction. In small-group instruction where discussion and task orientations prevail, a teacher becomes more participatory than directive. Laboratory instruction allows further individualization because the student is permitted to work independently.

Valencia also points out that time configurations can be planned to correspond to the instructional modes used in attaining the course objectives. The problem of complexity, which occurs in the scheduling process when many time patterns are used, can be alleviated with less structured time in the curriculum. The author recommends flexible-modular scheduling for continuous improvement of curriculum and instruction and for optimization of learning opportunities for students.

The Institute for Development of Educational Activities (1970) reports on a seminar held to produce ideas helpful to principals presently implementing a flexible-modular schedule and to those contemplating such scheduling for the near future. According to the report, participants agreed that flexible scheduling is only one of several interdependent practices and cannot be considered seriously except in combination with other closely related innovations.

STANFORD SCHOOL SCHEDULING SYSTEM

An outstanding example of innovative scheduling is the Stanford School Scheduling System (S-4 or SSSS), described in a booklet published by the Department of Industrial Engineering and the School of Education at Stanford University (1968).

The document surveys innovations in flexible scheduling and variable course structure designs in secondary education, discusses the school scheduling problem, and outlines schedule construction using the S-4. It also covers field testing of the system and its limits, and describes computer system requirements.

The S-4 has the following advantages: (1) it is a technology that enables the construction of complex flexible schedules; (2) it requires precise definition of the design of each course offered in the school program, as well as of the overall program design; and (3) it encourages professional personnel to explore in detail the appropriateness of different arrangements of time class size, pupil grouping, and use of staff and facilities.

According to Allen and De Lay (n.d.), the S-4 can free administrators from the burden of scheduling without loss of opportunity to make vital educational scheduling decisions. Since experimentation with a range of curriculum alternatives requires flexible scheduling, the restrictions of manual scheduling techniques must be removed.

The computer can provide maximum freedom to choose a schedule reflecting the abilities and interests of students and the special qualifications of teachers. In a few seconds it can investigate the millions of possible combinations of teachers, students, rooms, and limits of time, thereby satisfying a high percentage of student schedule requests. Furthermore, the S-4 costs of approximately $1 per student are comparable to costs of manually constructed schedules.

Petrequin and Tapfer (1968) describe Stanford's field implementation of computerized modular scheduling at Marshall High School in Portland, Oregon. In preparation for the new instructional program, staff members attended inservice training workshops and explored experimental techniques such as team teaching.

When the program was implemented, the basic schedule was changed from the conventional seven-period day to one divided into twenty-one modules of twenty minutes each. With advisory help, students preregistered in the spring for the following year and the computer utilized their schedules to prepare the master plan. Flexibility was enhanced through the adoption of four teaching-learning modes: large-group instruction, medium-sized groups for laboratory activities, small-group learning experiences, and independent study situations.

OTHER SPECIFIC PROGRAMS

An operating manual for administration of the Fort Lincoln New Town Education

System developed by General Learning Corporation (1970) includes elements critical to installation of a flexible system. The manual focuses on elements allowing growth of policies and procedures to serve particular needs. Specifications are detailed regarding information flow, storage, output, time cycles, and provisions for staffing, authority, and responsibility. The areas covered include registration, attendance, safety, and transportation of students. Building maintenance, food services, personnel records and payroll, staff scheduling, procurement, and an accounting system are also discussed.

At Dillingham High School (grades 7-12) in rural Alaska, the Dillingham City School District (1971) is establishing a schedule and curriculum that provides students and teachers with an active voice in determining their educational experiences. As a result, all courses are nongraded through the ninth-grade level and over two hundred one-half credit "minicourses" are offered in a variety of time arrangements. Junior-high-level students are able to enroll in regular high-school-level courses. The school year is divided into sixty-day trimesters and classes are scheduled in sixty-three-minute time blocks consisting of three twenty-one-minute modules. The school district reports favorable reaction to the new schedule and curriculum from students, teachers, and outside evaluators.

A report from a workshop on modular scheduling at Andrew Lewis High School (1967) in Salem, Virginia, presents avenues for curriculum improvement in secondary schools. Proposals included in the report cover the areas of team teaching, various sized instructional groups, grouping, teacher load, credits ,and marking. Additional areas of concern are nonscheduled time, school plant facilities, evaluation, and time allotments.

SMALL SCHOOLS

Warden and Leidich (1969) record one small school's adaptation of variable scheduling and the reactions of the school's staff and students to one year of the schedule's operation. The purpose of their experiential paper is to show how one school staff can cooperatively adapt a concept such as variable scheduling to its own needs without devoting major amounts of time or investing in computers or other costly equipment.

Anderson ([1966]) examines a daily modular scheduling system initiated for the small enrollment at Pahranagat Valley High School in Alamo, Nevada, with specific reference to types of instruction, schedule procedures, and conflict problems. The report is written in dissertation format, which presents a statement of the problem and a definition of terms, a review of literature relevant to modular scheduling, and a discussion of the development of a hand-generated modular schedule. Anderson also provides an evaluation of the scheduling system.

To provide a wider variety of curriculum offerings and to meet the individual needs of students, the Western States Small Schools Project (WSSP) realized it would be necessary to revise or alter drastically the existing organizational structure of educational programs. According to Jesser and Stutz (1966), modular scheduling has become the most popular method of meeting this necessity in the WSSP.

Advances in computer technology have made this approach possible and aid greatly in providing flexibility of scheduling. The participating schools characteristically approached the implementation of modular scheduling in three phases: the exploratory phase, the developmental phase, and the

operational phase. The authors describe these phases and the roles of the administrator and the consultants necessary for the program.

If individual student needs are to be met, Knudsvig (1966) believes the effective use of flexible scheduling, instructional aids, and modern technological techniques in small school systems is imperative. Flexible scheduling and the use of correspondence courses maximize opportunities in a limited curriculum.

Departmental Use of Flexible Scheduling

White (1967) describes a modified flexible scheduling program at Horton Watkins High School in Saint Louis. The Innovation English program is designed to encourage high school students to work independently and to share their reactions and ideas with others. Each student participating in the program attends one large-group instructional session (frequently taught by a team), two seminar discussions with a teacher and ten other students, and two independent study periods each week. During the latter periods, he may study independently, use the library, view a filmstrip, confer with a teacher to work out an individualized plan of study, or take an examination. Progress is facilitated by the use of student "work packages" that explain a unit's purpose and provide an outline and explanation of activities to be completed by the student.

Teachers are free, White explains, to create and structure their own courses, while students can pursue their independent study, research, and creative projects. In addition to traditional courses, the curriculum includes a creative writing course, a poetry course studying poetic techniques and devices, and an American studies course examining the relationships among literature, history, sociology, and literary criticism.

In a discussion of class scheduling problems, Klotman (1968) emphasizes scheduling of music classes. The first part of the booklet reports eleven current scheduling practices. The second part concerns data processing and use of computers for scheduling, with discussion centering on the Stanford School Scheduling System (SSSS). In the third part of the booklet, the author considers flexible scheduling, emphasizing a specific plan used in the Brookhurst Junior High School in Anaheim, California.

To provide a guide for implementation of flexible-modular scheduling in industrial education, Resnick (1970) examined modular schedules already established in the industrial education departments of various schools. Results of the study show that formal arrangements for industrial education existed even though the schools were experimenting with an innovative program and that almost 50 percent of the schools used large-group instruction, primarily as a one-teacher presentation. Although structured laboratory sections have been reduced from five hours to approximately two hours per week, the same pattern as traditional laboratory activities is generally followed.

The study reveals further that most schools allow their students approximately 40 percent unscheduled time with the student honor system used in safety, cleanup, tool usage, and attendance during open-lab modules. Most schools reported they lacked resource centers and adequate paraprofessional support and differentiated staffing patterns. The general pattern of industrial education programs in the study includes one large-group meeting per week, two structured labs, and the use of open labs.

Arendt (1970), discussing foreign language instruction, reviews traditional scheduling patterns and problems that arise from inflexible, lockstep systems and examines the seven-period day. Charts illustrate the concept of the "floating" period. The author discusses flexible-modular scheduling; large, intermediate, and small group instruction; and individual and independent study. Specific reference is made to programs using learning packages, for example, Minipacs, Unipacs, and Learning Activity-Packages (LAP). A departure from other kinds of flexible scheduling, called "demand" scheduling, is reviewed. Arendt enumerates problems and advantages of flexible scheduling and concludes with a discussion of student achievement, special needs, the teacher, and the quarter or semester plan.

Clarke and Cottle (1967) report on a teamed, modular approach to teaching elementary school social studies, developed at Weber County Schools, Utah. Purposes of the approach are to deal with individual student differences, to utilize teacher specialties and school facilities, and to increase student awareness of responsibility in learning. The curriculum allowed each student to choose from alternative activities (such as lectures, special projects, or independent study), which are repeated so that each student can review or participate in each activity. Results show student achievement, initiative, and responsibility have increased greatly.

Additional references to departmental use of flexible scheduling appear in the supplementary bibliography.

STUDIES EVALUATE SUCCESS OF FLEXIBLE-MODULAR SCHEDULING

Macey (1968) reports that four studies conducted on junior and senior high schools using some form of modular scheduling suggest proper evaluation of flexible scheduling includes observation of behavior, measurement of attitudes and opinions, and assessment of pupil achievement. Results of the studies show (1) observable behavior can be evaluated by recording patterns of classroom activity; (2) student, teacher, and parental views of flexible scheduling can be assessed via opinionnaires; (3) the relative effectiveness of independent study, large-group instruction, and small-group activity can be evaluated through the use of opinionnaires; and (4) teaching effectiveness can be determined through comparative achievement testing.

An "at home" evaluation of the Stanford School Scheduling System at North Miami Senior High School (Florida), after one year's operation, is reported by Hicken (1968). Results reveal that student grades on a cross-section showed a slight improvement with moderate improvement in class conduct and attendance. A positive change was also observed in students' attitudes toward study. Students and teachers approved of large/small-group study, but more attention to the small-group design for in-depth discussion and personal interaction is needed.

At the administrative level, general commitment to the program was widespread, yet agreement on philosophies and educational assumptions of the program could increase. Generally there has been a movement toward more individualized instruction. Hicken recommends emphasis on staff differentiation and use, as well as on further development of the new teaching techniques offered by modular scheduling.

Speckhard and Bracht (1968) describe a follow-up study made in 1968 to test the findings of a 1965 study of students and teachers in two high schools--one

experimental and one control--in the same Colorado school system. Approximately five hundred students were enrolled in the experimental school, which practiced modular scheduling, and thirteen hundred in the control school. In addition to general problems of the total program, questionnaire items covered practices and problems of large-group sessions, small-group sections, supervised study, and unscheduled time.

Study findings indicate the experimental school's use of the modular schedule in 1968 was more consistent with expected practices than in 1965. The program was favorably received by both students and teachers. Except for critical thinking, students at the experimental school showed growth in academic achievement equal to or better than students in the control school.

Two students (Filene and Kief 1967) describe student and teacher reactions to a program of flexible scheduling and independent study time at South Hills High School, Covina, California. Questionnaires were distributed to teachers and students during the first and second years of the program. First-year results were interpreted while the authors were students at South Hills. This document reports the second-year results and analyzes the entire program after Filene and Kief had gained the perspective of a year at college. The evaluation emphasizes the relevance of the program in preparing students for higher education and in inducing student maturity, and the success of the program in making school more interesting and enjoyable to the students. The authors conclude that the program was generally successful and recommend its continuation with some modification of funding and teacher behavior.

Edwards and Flexer (1966) report on student reaction to modular scheduling at Abington High School-North Campus (Pennsylvania). Opinnionaires, completed by 930 ninth-grade students, contained thirteen statements to which responses were made along a five-point, strongly agree-strongly disagree continuum. It was concluded that the majority of ninth-grade students, regardless of sex, academic ability, or sending school, were favorably inclined toward modular scheduling.

Grady (1969) describes a study designed to sample parent opinion about the modular scheduling system in operation for two years at General William Mitchell High School (Colorado Springs). Of the 400 parents who were mailed questionnaires, 328 responded. Attitudes toward large-group instruction, small-group instruction, independent study time, and the Mitchell program in general were measured. Responses were positive toward all aspects of the program, with small-group instruction rating the highest. Parents of college-bound students favored the program more than did parents of students bound for a job, vocational training, or the armed forces. Seventy-two percent of the responding parents believed modular scheduling should be continued, 22 percent wished it would be discontinued, and 6 percent were uncertain.

> It is conceivable that merely changing the scheduling arrangement will not, in itself, result in greater learning; yet it can provide the conditions for teachers to change their role in the application of strategies and media most appropriate and relevant to the learner.
>
> *Valencia (1969)*

REFERENCES

Abstracts of the following documents can be located in *Research in Education.* The complete texts are available from the ERIC Document Reproduction Service (EDRS), commercial channels,

or both. Publications can be ordered in either facsimile paper copy form or microfiche.

For each order, indicate the ED numbers of the desired publications, the type of reproduction desired (paper or microfiche), and the number of copies being ordered.

Payment must accompany orders under $10.00. Postage, at book rate or library rate, is included in the price of the document. If first class mailing is desired or if shipment is outside the continental United States, the difference between book rate or library rate and first class or foreign postage will be billed at cost. All orders must be in writing.

Address requests to ERIC Document Reproduction Service, P.O. Drawer O, Bethesda, Maryland 20014.

Allen, Dwight W., and De Lay, Donald. *Flexible Scheduling: A Reality.* Stanford, California: School of Education, Stanford University, n.d. 10 pages. ED 027 624 MF $0.65 HC $3.29.

Anderson, David Neil. *Daily Modular Scheduling Practice at Pahranagat Valley High School. Report.* Carson City: Nevada Western States Small Schools Project, [1966]. 91 pages. ED 027 993 MF $0.65 HC $3.29.

Andrew Lewis High School. *A Report Concerning the Summer Workshop on Modular Scheduling; An Activity of the Title III Project, The Use of Modular Scheduling in Curriculum Improvement.* Salem, Virginia: 1967. 62 pages. ED 022 241 MF $0.65 HC $3.29.

Arendt, Jermaine D. *New Scheduling Patterns and the Foreign Language Teacher. ERIC Focus Reports on the Teaching of Foreign Languages, Number 18.* New York: American Council on the Teaching of Foreign Languages; Modern Language Association of America; and ERIC Clearinghouse on the Teaching of Foreign Languages, 1970. 18 pages. ED 043 269 MF $0.65 HC $3.29. (Also available from MLA/ACTFL Materials Center, 62 Fifth Avenue, New York, New York 10011, $0.25.)

Clarke, Don, and Cottle, Melvin A. "The Modular Approach in Teaming Social Studies at the Elementary Level." Ogden, Utah: Center for Team Teaching, Weber County Schools. *Team Teaching,* 1, 9(May 1967). 1 page. ED 033 078 MF $0.65 HC $3.29.

Davis, Harold S., and Bechard, Joseph E. *Flexible Scheduling.* Cleveland: In-Service Education and Staff Utilization, Educational Research Council of America, 1968. 31 pages. ED 022 254 MF $0.65 HC not available from EDRS. (Available from Educational Research Council of America, Rockefeller Building, Cleveland, Ohio 44133, $1.00.)

Dillingham City School District. *The Nongraded-Trimester-Minicourse Concept: Report to Date.* Dillingham, Alaska: 1971. 51 pages. ED 050 863 MF $0.65 HC $3.29.

Edwards, Pauline L., and Flexer, Barbara. *The Opinions of Ninth Grade Students at Abington High School North Campus About Modular Scheduling. A Report on the Results of a Student Opinionnaire.* Abington, Pennsylvania: North Campus, Abington High School, 1966. 26 pages. ED 027 604 MF $0.65 HC $3.29.

Filene, Ron, and Kief, Gary. *A Student Report on Student and Teacher Reactions to Modular Scheduling and Independent Study at South Hills High School During the 1966-67 School Year.* Covina, California: Covina Valley Unified School District, 1967. 38 pages. ED 021 313 MF $0.65 HC $3.29.

General Learning Corporation. *Administrative Procedures for the Fort Lincoln Schools. Fort Lincoln New Town Education System.* Washington, D.C.: 1970. 151 pages. ED 047 180 MF $0.65 HC $6.58.

Grady, Roslyn M. *Survey of Parent Opinions on Modular Scheduling at General William Mitchell High School.* Colorado: Colorado Springs School District Eleven, 1969. 48 pages. ED 035 084 MF $0.65 HC $3.29.

Heathman, James E., and Nafziger, Alyce J. *Scheduling for Flexibility: A Manual for Administrators of Small Schools.* Las Cruces: ERIC Clearinghouse on Rural Education and Small Schools, New Mexico State University, 1971. 60 pages. This document will soon appear in *Research in Education.*

Hicken, James E. *An Assessment of a Senior High School Modular Scheduling Program.* Miami, Florida: 1968. 19 pages. ED 033 464 MF $0.65 HC $3.29.

Institute for Development of Educational Activities. *The Flexibly Scheduled School of 1980. A Report of the National Seminar on Modular Flexible Scheduling. An IDEA Occasional Paper.* Dayton, Ohio: 1970. 14 pages. ED 052 543 MF $0.65 HC $3.29. (Also available from I/D/E/A, Mail Orders, P.O. Box 628, Dayton, Ohio 45419, $1.00.)

Jesser, David L., and Stutz, Rowan D., eds. *Scheduling for Flexibility in Small Schools.* Salt Lake City: Western States Small Schools Project, 1966. 20 pages. ED 021 657 MF $0.65 HC $3.29.

Klotman, Robert H., ed. *Scheduling Music Classes.* Washington, D.C.: Music Educators National Conference, 1968. 70 pages. ED 034 309 MF $0.65 HC not available from EDRS. (Available from National Education Association, 1201 Sixteenth Street, N.W., Washington, D.C. 20036, $1.50.)

Knudsvig, Everett C. *Responsibilities of a Member of UMSSP School.* 1966. 8 pages. ED 010 972 MF $0.65 HC $3.29.

Maxey, James. "Evaluation of the Outcomes of Modular Scheduling." Paper prepared for annual membership meeting. Iowa City: Iowa Center for Research in School Administration, University of Iowa, 1968. 10 pages. ED 026 733 MF $0.65 HC $3.29.

Petrequin, Gaynor, and Tapfer, William G. "A Computer-Generated, Teacher-Developed, Modular-Flexible Schedule." Chapter 1 in *Individualized Learning through Modular Flexible Programming,* edited by Gaynor Petrequin. New York: McGraw-Hill Publishing Company, 1968. 24 pages. ED 030 206 MF $0.65 HC $3.29. (Complete document available from McGraw-Hill Publishing Company, 330 West 42nd Street, New York, New York 10036, 180 pages. $5.95, $3.95 paper.)

Resnick, Harold S. *The Implementation of Flexible Modular Scheduling for Industrial Education.* Ann Arbor, Michigan: 1970. 315 pages. ED 043 738 Document not available from EDRS. (Available from University Microfilms, Inc., 300 North Zeeb Road, Ann Arbor, Michigan 48106.)

Speckhard, Gerald, and Bracht, Glenn H. *An Evaluation of the Educational Program of a High School Using a Modular Schedule: A Follow-up Study.* Boulder, Colorado: Boulder Valley School District; and Laboratory of Educational Research University of Colorado, 1968. 43 pages. ED 025 840 MF $0.65 HC $3.29. (Also available from Laboratory of Educational Research, University of Colorado, Boulder, Colorado 80302, $0.75.)

Stanford University. *The Stanford School Scheduling System.* Stanford, California: Department of Industrial Engineering, and School of Education, 1968. 28 pages. ED 028 501 MF $0.65 HC $3.29.

Valencia, Atilano A. *Flexible-Modular Scheduling and Related Instructional Strategies.* Albuquerque, New Mexico: Southwestern Cooperative Educational Laboratory, Inc., 1969. 29 pages. ED 037 809 MF $0.65 HC $3.29.

Warden, Eric, and Leidich, Paula B. *An Adaptation of Variable Scheduling to the Program of a Small Junior High School.* Ann Arbor: University of Michigan, 1969. 44 pages. ED 046 127 MF $0.65 HC $3.29.

White, Christine M. *Development in English at Horton Watkins High School, St. Louis, Missouri.* St. Louis: 1967. 14 pages. ED 018 414 MF $0.65 HC $3.29.

Wiley, W. Deane, and Bishop, Lloyd K. "The Basic Case for Variable Class Scheduling." Chapter 2 in *The Flexibly Scheduled High School.* West Nyack, New York: Parker Publishing Company, Inc., 1968. 27 pages. ED 028 542 MF $0.65 HC $3.29. (Complete document available from Parker Publishing Company, Inc., One Village Square, West Nyack, New York, New York 10994, 208 pages, $7.95.)

SUPPLEMENTARY BIBLIOGRAPHY

Barone, Frank. "Communication Arts: Individualization through Curriculum, Content, and the Small Group." Redlands: California Association of Teachers of English. *California English Journal,* 5, 3(October 1969). 4 pages. ED 042 747 MF $0.65 HC $3.29.

Hibbard, Allen. "Modular Scheduling and Modern Foreign Languages." Address presented to Spring Conference of the Foreign Language Association, Dickinson, North Dakota. *Foreign Language Association of North Dakota (FLAND) News,* 1, 1(Spring 1969). 3 pages. ED 030 353 MF $0.65 HC $3.29.

Missouri State Department of Education, and National Council of State Supervisors of Foreign Language. "Flexible Scheduling and Foreign Languages." Jefferson City: *Show-me News and Views* (The Missouri Foreign Language Newsletter), 2, 1 (September 1970). 4 pages. ED 044 991 MF $0.65 HC $3.29.

Politzer, Robert L. "Flexible Scheduling and the Foreign Language Curriculum." Washington, D.C.: National Education Association. *The DFL Bulletin,* 7, 1(October 1967). 4 pages. ED 016 442 MF $0.65 HC $3.29.

RESEARCH HIGHLIGHTS

- Flexible scheduling allows teachers to change group size, group composition, and class length according to the purpose of the lesson *(Davis and Bechard 1968)*.
- Flexible scheduling cannot be considered seriously except in combination with other closely related innovations *(Institute for Development of Educational Activities 1970)*.
- When used with correspondence courses, flexible scheduling can maximize opportunities in a limited curriculum *(Knudsvig 1966)*.
- An evaluation of modular scheduling at one high school showed slight improvement in student grades, class conduct, attendance, and attitudes toward study *(Hicken 1968)*.
- The majority of ninth-grade students at a high school using modular scheduling reported they favored the innovation *(Edwards and Flexer 1966)*.
- Parent opinion about modular scheduling at one high school was found to be positive *(Grady 1969)*.

ERIC and ERIC/CEM

The Educational Resources Information Center (ERIC) is a national information system operated by the United States Office of Education. ERIC serves the educational community by disseminating educational research results and other resource information that can be used in developing more effective educational programs.

The ERIC Clearinghouse on Educational Management, one of twenty such units in the system, was established at the University of Oregon in 1966. The Clearinghouse and its nineteen companion units process research reports and journal articles for announcement in ERIC's index and abstract bulletins.

Research reports are announced in *Research in Education (RIE)*, available in many libraries and by subscription for $21 a year from the United States Government Printing Office, Washington D.C. 20402.

Journal articles are announced in *Current Index of Journals in Education. CIJE* is also available in many libraries and can be ordered for $39 a year from CCM Information Corporation, 909 Third Avenue, New York, New York 10022.

Besides processing documents and journal articles, the Clearinghouse has another major function—information analysis and synthesis. The Clearinghouse prepares bibliographies, literature reviews, state-of-the-knowledge papers, and other interpretive research studies on topics in its educational area.

The ERIC Clearinghouse on Educational Management operates under contract with the Office of Education of the United States Department of Health, Education, and Welfare. This review was prepared pursuant to that contract. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Office of Education position or policy.

ERIC Clearinghouse on Educational Management, University of Oregon, Eugene, Oregon 97403